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10/607,926

06/27/2003

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08/08/2005

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EXAMINER

WONG, ERIC K

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,926

Applicant(s)

SHOU, NATHAN L.

Examiner

Eric Wong

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to independent claims 1, 9, and 16 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 9-10, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Number 6,178,044 to Li et al.

As to claims 1, 3, 9-10, and 12-13, Li et al. discloses in figure 2B an optical isolator having an input and output, the optical isolator comprising:

- A phase retardation plate (half wave plate) positioned at the input; and
- An optical Faraday rotator positioned between the phase retardation plate (112) and the output, the isolator comprising a Faraday rotator (118) positioned between a first (116) and second (122) polarizer.

However, Li et al. fails to explicitly disclose that the phase retardation plate is the first polarization-modifying component encountered by the optical signal.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a phase retardation plate as the first component of an optical isolator, since it has been held that rearranging parts of an invention involves only routine skill in

the art. *In re Japikse*, 86 USPQ 70. Examiner's contention of this obvious choice in design can be overcome if applicant establishes unexpected results by arranging the components in the location as claimed.

4. Claims 5-6, 14-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

Li et al. discloses an optical isolator but fails to explicitly disclose the use of polarization maintaining fibers at the input and output. It is respectfully noted that polarization maintaining fibers (PMF) are commonly used in the optical communication art for preventing back reflections to an optical source.

Applicant's disclosure of prior art goes into further detail of how such PMFs work in figure 1B and paragraphs 17 and 18.

Since Li et al. and Applicant's prior art are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Li et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the PMF disclosed in applicant's disclosure of prior art in Li et al. in order to reduce optical transmission errors by reducing the amount of light reflected back to the source.

5. Claims 2, 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. as applied to claim 1 above.

Li et al. discloses an optical isolator that uses a Faraday rotator but fails to explicitly disclose the use of a second Faraday rotator.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a second Faraday rotator, in order to properly adjust the polarization of the signal for its intended use and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

6. Claims 7-8, 16, 18, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. as applied to claim 1 above, and further in view of applicant's disclosure of prior art.

Li et al. discloses an optical isolator with optical input ports that receive optical signals, but fails to explicitly disclose the use of a tunable optical laser input. It is respectfully noted that tunable lasers are commonly used in the art to generate optimal optical signals in an optical communications system.

Applicant's disclosure of prior art includes such tunable optical lasers of a typical optical communications system in figure 1A (102).

Since Li et al. and Applicant's prior art are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Li et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the inputs of the optical isolator disclosed by Li et al. would receive signal light from a source such as a tunable laser in order to properly transmit signals with minimal errors and losses and to select wavelengths and frequencies for its intended use.

As to claim 18, a half wave plate is disclosed as mentioned above in the rejection of claims 3 and 12.

7. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li et al. as applied to claim 1 above, and further in view of Applicant's disclosure of prior art.

Li et al. discloses an optical isolator with a half wave plate, but fails to explicitly disclose angling the plate relative to a light path.

Applicant's disclosure of prior art includes such an angled waveplate (220, figure 2B).

Since Li et al. and Applicant's prior art are both from the same field of endeavor, the purpose disclosed by applicant would have been recognized in the pertinent art of Li et al.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the angled waveplate disclosed by Applicant in Li et al. in order to reduce errors in transmission and to optimize the optical signals being transmitted through said isolator.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wong whose telephone number is 571-272-2363. The examiner can normally be reached on Monday through Friday, 830AM - 430PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2883

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EW



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